UNITED NATIONS

Convention to Combat Desertification

Distr.
GENERAL

ICCD/COP(4)/AHWG/2/Add.2
20 February 2001

ENGLISH ONLY

CONFERENCE OF THE PARTIES
Fourth session
Ad Hoc Working Group
Inter-sessional meeting
Bonn, 19 March - 6 April 2001
Item 2(a) of the provisional agenda

SUMMARIES OF REPORTS SUBMITTED BY AFFECTED ASIAN COUNTRY PARTIES

Addendum

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LEBANON

The Republic of Lebanon is situated on the eastern shores of the Mediterranean. It covers a total area of 10,452 km² most of it being mountainous. The Mount-Lebanon and the Anti-Lebanon chains run parallel to the sea, separated from each other by the Beqaa plain. The population of Lebanon is estimated to be around 4 million, of which around 1 million are foreigners.

Lebanon's climatic conditions are determined by its geography and physiography. They vary from a Mediterranean climate along the coastal plain and in the middle mountain range, to reach the sub-alpine or montane Mediterranean climate on the highest slopes, covered by snow during most of the year; they become sub-desertic and almost too dry for agriculture in some of the northern plains.

As in most countries exposed to the Mediterranean climate, most of the precipitation falls between November and March, in the form of heavy showers. The mean annual rainfall on the coast ranges between 700 and 1,000mm; it peaks in the central mountains at 1,600mm; it ranges in the Beqaa plain from 200mm in the north-eastern part to 800mm in the southern part; while on the Anti-Lebanon chain it ranges from 600mm to 1,000mm in the Hermon.

The different ecosystems in the country are mainly threatened by deforestation, over-grazing, urban development, road development, bad agricultural techniques, excessive use of chemical products, over-hunting and industrial development.

The rural exodus has had impacts on land degradation, as abandoned agricultural lands are easily eroded. The war situation which prevailed in the country during several years has enhanced poverty, mainly in some remote rural areas.

Lebanon has to face the new challenges and policies of the third millennium, with new markets to deal with. The Ministry of Agriculture has therefore prepared a strategy for the development of the agricultural sector. This strategy aims mainly at improving the quality of crops produced, the production of new crops and the utilization of better and more efficient irrigation techniques. The strategy has not been implemented yet. It includes training, reforestation, information gathering and database management, agricultural infrastructure and economic and social plans.

After several years of total lack of control imposed by the war situation in the country, the Government of Lebanon has realized the importance of linking the environment to the overall development process. Initiatives are launched to save natural patrimony and promote protection and proper management of natural resources.

As soon as countries affected by drought and desertification were called for signature and ratification of the Convention to Combat Desertification, the Government of Lebanon, through the Ministry of Agriculture, answered the call. The CCD was signed in September 1995 and ratified in December 1995.

The Ministry of Agriculture is in charge of the implementation of the UNCCD in Lebanon and hosts the National Focal Point.

An Umbrella Project document was prepared with the assistance of UNDP and FAO. It led to the preparation of a project document with the assistance of UNDP aiming at the preparation and implementation of the NAP and its activities. It was pending till now because of the lack of funding from the Government. At the time of submitting this report, the decree authorizing the transfer of the Government contribution to the project is in its final stages of signature. The project will therefore be starting soon.

Another project will be providing support to the preparation of the NAP through remote sensing and GIS techniques. It will be implemented with the German development agency, the GTZ, the Arab Centre for Scientific and Agricultural Development, ACSAD, the National Centre for Remote Sensing and the Ministry of Agriculture, Rural Development and Natural Resources Directorate. It is financed by the German Government with an in-kind contribution from Lebanon.

Although the Ministry of Agriculture is the designated authority in charge of implementing the UNCCD in Lebanon, several stakeholders involved in the management of natural resources have an important role to play in this issue.

The Government is working on the rehabilitation of several sectors affected by the war and its consequences and on stopping the degradation of natural resources. International organizations are assisting this process by providing technical and financial support to specific projects.

Before the establishment of the Ministry of Environment, the Ministry of Agriculture was in charge of preparing and implementing all laws and legislative processes relating to natural resources. First forest legislation was written in 1949. Decrees and laws were added. Legally, the Ministry of Agriculture can develop laws that are subject to the Government's approval as well as Ministerial Decrees and decisions (such as the deployment and training of forest guards).

After its establishment, the Ministry of Environment took over the preparation and implementation of legislation on many of the issues related to natural resources. However, the Ministry of Agriculture is still in charge of many other aspects.

One of the main problems in the implementation of the UNCCD in Lebanon is the financial aspect. The Government's support to the Ministry of Agriculture constitutes less than 0.5 per cent of the total Government budget. This financial problem has delayed the implementation of the UNDP-Ministry of Agriculture Project for three years.

Several international organizations grant financial support to assist in the rehabilitation of the natural resources sectors of the country, through capacity-building, project implementation and technical assistance. These organizations are: World Bank, FAO, GTZ, UNDP, French Government, US Loans for Livestock, IFAD, EU, GEF. Other organisations are also involved.

Despite the fact that it was one of the first countries in the region to have signed and ratified the CCD, and despite the leading role it played on the regional and subregional level, Lebanon has not started preparing the NAP yet.

However, as soon as the necessary budget is allocated and both UNDP and GTZ projects are initiated, the process will be moving forward steadily.

In the absence of a NAP, the Umbrella Project, the UNDP and the GTZ projects are briefly described.

Through the participatory approach, projects will coordinate with all other ongoing projects in order to avoid any redundancy. None of the ongoing projects deal directly with the issues and components proposed by this project; however, as combating desertification is a broad and wide spread subject, it will have to draw information and eventually ask for some cooperation from those projects.

The Government of Lebanon, through the capacity of the Ministry of Agriculture, will provide the necessary space, equipment and facilities for the implementation of project activities. It will make available personnel, national consultants and experts whenever necessary.

The Government of Lebanon is committed to the UNCCD. It will not spare any effort to move forward towards the implementation of the NAP and the activities it is proposing.

MALAYSIA

INTRODUCTION

Soon after the independence, Malaysia launched an aggressive programme to develop its agricultural sector as part of the overall efforts to develop the nation. The decision to develop its agricultural sector was perhaps the most logical course of action to be undertaken, as land was the most important resource of the country; it was abundant readily available. The main thrust of the development was directed at the conversion of large tracts of forest land into agricultural land for the cultivation of important economic crops.

In the nineteen sixties and seventies, the development of land was concentrated mainly on land with favorable topography, However, in recent years, as much of such land has been utilized, the encroachment into the steep areas has become inevitable. In fact, in many places in the peninsula, steep areas have been opened up to meet ever-increasing demand for land although under present circumstances, such areas not recommended for agricultural development. With topographically suitable land being used up rapidly in all the states in the peninsula, the infringement of the steep areas is expected to escalate to a phenomenal level, which if left unchecked, can cause alarmingly adverse effects to the environment. This has created the necessity to examine steep areas in greater detail and to scrutinize to what extent such land can be utilized effectively and profitably for food production without causing undesirable damage to the environment.

PHYSICAL ENVIRONMENT

Location

Peninsular Malaysia is situated between the equator and 8° North latitude and longitudes 99° and 120° East. It is bordered in the East by the South Chine Sea and to the West by the Straits of Malacca. The greatest length, which runs from

the northwest to the southeast, is 736 km and the maximum width is about 320 km. The peninsula has an area of 13.2 million ha of land.

Physiography

The physical relief is dominated by the Main Range, which runs almost centrally along the middle of the peninsula. The Main Range rises to a height of beyond 2,200 meters above sea level. Secondary ranges that fan out from it, mainly in the northern half of the country are the Kedah-Singgora Range, the Gunong Bintang Range on the western side while the Gunong Benom Range, the Gunong Tahan Range and the East Coast Range are to the east of it. From these mountain ranges, rivers flow through hilly and rolling lowlands towards the floodplains, coastal flats and beach ridges.

Climate

Malaysia has a hot humid climate, which can be classified as subtype Afi (tropical rainforest) of Koppen's classification. In the extreme northwest of the peninsula, where a distinct dry spell is present from the months of December to February, the climate tends to be Am (tropical monsoon). The annual air temperature is generally over 24° Celsius while the main annual rainfall is over 2000 mm. In general, the mean annual rainfall in most of the highlands (above 300 m a.s.l.) ranges from 2,000-2,200 mm and is quite similar to that of the national average. The highlands in Peninsular Malaysia do not receive significantly higher rainfall than the lowlands. Moisture availability is, however, higher due to lower evaporation. The soil moisture regime is udic below 300 m a.s.l. and perudic above this elevation. The soil temperature regime is isonyperthermic (>22°C) up to 1,200 m a.s.l., isothermic (15-22°C) between 1,200 to 1,600 m a.s.l. and isomesic (<15) at elevations exceeding 1,600 m a.s.l..

Vegetation

The primary vegetation from the lowlands to the highlands can be grouped into four floristic zones. The family Dipterocarpceae dominates the lowland forests below 300 m (about 1000 ft). The group Shorea is evident at this altitude. Between 300 m and 800 m (1,000 -2,500 ft), the Hill Dipterocarp appears. The upper Dipterocarp occurs between 800 m and 1,200 m (2,599-4,000 ft) and Oak-Laurel forests are found between 1,200 m and 1,600 m (4,000-5,000 ft). Above 1,600 m (5,000 ft), the Montane Ericaceous forests occur. Generally, the tree fern Thelypterus chlamydophora is commonly found above 300 m.

Soils

A wide range of soils is found in the steep areas from an elevation of 76 m a.s.l. to beyond 2,000 m a.s.l., representing major differences in parent material, climate, vegetation and terrain conditions. A climo-biotoposequence study of soils derived from granitic parent materials (Paramananthan, 1977) in the Cameron Highlands illustrates the influence of these major factors on soil formation. The soil survey of the KESEDAR Region (Lim et al, 1980) provided a wealth of information on soils on steepland dominated by shale parent materials. Ad hoc soil surveys in other states have also yielded information on the nature and properties of soils on the steep areas.

SOIL AND WATER CONSERVATION ACTIVITIES

1. Preparation of Erosion Risk Map

The Erosion Risk Map is a map showing an estimation of the total soil loss due to erosion on area without agronomic and conservation practices (worst case

scenario) at various terrain classes using Universal Soil Loss Equation Method(modified) and Geographical Information System. The Erosion Risk Map available at present was prepared using the reconnaissance soil survey map as the base map, This map is useful to planners in predicting the average rate of the potential soil erosion and to recommend soil conservation measures to reduce soil loss within permissible limits. The process of preparing the Erosion Risk Map using the semi-detailed soil map was started in 1999. This process is being done by stages according to the completion of the digital data of the semi-detailed soil map.

2. Preparation of Agroclimatic Map

The Agroclimatic Map is the map showing the various zones with the same duration of moist/wet months and zones with similar duration of moist/wet different month. The available Agroclimatic Map was prepared in 1992. At present, this map is being improved whereby in the computation, available soil moisture in the top 100 cm of the soil (formerly 50 cm only) is added to 80% probability rainfall for the following month to calculate monthly balance of that month. In addition rainfall data for the period 1966-1996 covering 580 rainfall stations (formerly 340 station only) in the country are used in the calculation. The map is still in the modeling process using GIS ARCINFO Version 7.1. Agroclimatic map is useful in the determination of the suitable planting time for various crops and also to determine the types of crops suitable for an area.

3. Preparation of Terrain Class Map

Terrain class map is a map showing the various terrain classes in an area. The Digital Elevation Modelling of the GIS ARCINFO Version 7.1 is used to generate the terrain map of an area using digital semi-detailed soil map data. Terrain information is an important input in the determination of surface related applications such as soil mapping, soil suitability assessment, soil conservation practices and other agricultural and non-agricultural applications.

4. Preparation of Watershed Map

The purpose of preparing the Watershed Map is to study the land use pattern with time. Ultimately, hydrological studies involving water quality, sediment yield and other relevant studies will be carried out. All the major watershed areas in Peninsular Malaysia will be mapped out. Currently, Sg. Selangor watershed area, Sg. Bernam watershed area and Sg. Langat watershed area have been prepared. As usual, ARCINFO Version 7.1 is being used to overlay the landuse map over the watershed area concerned.

5. Database Development for Soil Physical Properties

The development of data base is merely the compilation of the soil physical properties as a result of the soil conservation activities, such as the determination of the soil erodibility using the portable rain simulator, determination of the soil infiltration rate using the double ring method and the sampling of soil for determination of physical properties using brass core method. The soil physical properties that are of interest are the bulk density, particle density, total porosity, hydraulic conductivity, moisture content, infiltration rate and the soil erodibility. Such properties are useful for the preparation of the erosion risk map, agroclimatic map, development of soil management guidelines, and other hydrological studies that will be carried out later.

6. Study of Soil Erosion for different soil types, crop groups and terrain classes

With the use of the Soil Erosion Gauge (designed locally) we are able to estimate the amount of soil loss over an area with different soil type, crop type and terrain class. Hence comparison of the soil loss in tons per hectare per year can be studied at different parameters. The study will be carried out for 1-2 years at different soil types and terrain classes through out the country.

7. Demonstration plot showing conservation structures and agronomic practices

These plots have been constructed in the farmer's land where there is existence of sloping area. The purpose of these demonstration plots is to show to the farmers the type of conservation structures that have to be made for different slope classes and different crop groups. At the same time, the necessary agronomic practices that have to be carried out will also be shown. This plot will be the focal point for farmers having sloping land for agricultural purposes.

8. Preparation of Development Plan for Agriculture on Sloping Land

Soil erosion and land slide have been a menace to most agricultural areas on sloping land in Malaysia. Soil erosion becomes serious problem on slopes more than 25 0 . Removal of ground covers on steep slopes will invariably result in rapid and excessive soil erosion leading to soil degradation. This in turn will lead to siltation of rivers and flood at the lower catchment areas. On the other hand, the soil conservation and agronomic practices to a smaller extent are not being adopted by the developers/planners in some areas. Considering all the above, the Development Plan for Agriculture on Sloping Land degradation is being prepared for districts with high percentage of sloping land to assist the planners and developers in identifying the areas that can be developed for agriculture based on two criteria as follows:

- Elevation. The National Forestry Council, through the National Forestry Act has made the decision that forest at elevation more than 1000 meters must be gazetted as soil protection forest and water catchment forest.

- Terrain class. The Department of Agriculture, through the Guidelines for Developing Sloping Lands, has stated that sloping lands more than 25°(falls under Terrain Class C6) should not be developed for agriculture. Such areas are extremely difficult to work on and are highly susceptible to soil erosion and landslides when exposed.

9. Training and Extension Programmes

The Department of Agriculture will still continue to play the role in the transfer of knowledge to the farmers. In this action plan, the transfer of knowledge will concentrate on the issues pertaining to the package technology for agriculture development on sloping land as follows:

1. Guidelines for land clearing for various crop groups and slopes.
2. Guideline for construction of soil conservation structures for various crop groups and slopes.
3. Guidelines for agronomic practices to combat erosion, for various crop groups and slopes.
4. Farmers visit to demonstration plots showing the various soil conservation structures and agronomic practices for various crop groups and slopes.

RELATED AGENCIES AND INSTITUTIONS

Several institution and agencies are involved in the implementation of the soil conservation and land degradation programmes. The related parties are as follows:

1. Department of Agriculture
2. Department of Irrigation and Drainage
3. Department of Environment
4. Department of Forestry
5. Federal Land Consolidation Rehabilitation Authority
6. Federal Land Development Authority
7. Rubber Industry Small Holders Development Authority
8. Forest Research Institute of Malaysia
9. Rubber Research Institute of Malaysia
10. Malaysian Agriculture Research and Development Institute

RELATED LAWS AND REGULATION

The related laws and regulations are as follows:

1. The National Land Code, 1965
2. The Land Conservation Act, 1960
3. The Environmental Quality Act, 1974
4. The National Forestry Act, 1984

FORMULATION OF NATIONAL ACTION PLAN

Most probably, the Focal Point will make arrangement for National Workshop in early 2001 to discuss the formulation of the national action plan.

NATIONAL FOCAL POINT

As stated in the website of the UNCCD, the National Focal Point is as follows:

Mr. Mohd Zulkifli Mohammad,
International Unit,
Ministry of Agriculture
Kuala Lumpur, Malaysia.

MYANMAR

Introduction

Myanmar is situated in South East Asia and is identified as a country affected by desertification. Arid and Semi-arid region of Myanmar known as Dry Zone is located in the central part of the country. About 10 per cent of the total land area of the country is in the Dry Zone and about one third of the total population live in this area. Eighty one per cent of it, is rural. Agriculture land productivity is adversely affected by population pressure, cropping on inherently poor and fragile soils. The dry zone also has low forest cover. The decline in the extent of forest cover area particularly in the dry zone of central Myanmar is attributable to excessive cutting of fuel wood due to population growth, inadequate supply and high cost of non-wood energy sources and inefficient utilization of woodfuel.

The Government has been making efforts to combat land degradation for many years. The Ministry of Agriculture and Forests established Agriculture and Rural Development Cooperation (ARDC) in 1953 and initiated reafforestation programmes in the Dry Zone. ARDC achieved significant success especially in greening Mount Popa which has now become an oasis in the centre of the dry zone and an ecotourism site.

With a view to intensify activities to combat desertification and drought in the arid zone, the Government launched a national Programme in 1993-94. The 3-year Greening Project for the Nine Critical Districts of the Arid Zone has been implemented by the Ministry of Forestry in cooperation with the related ministries.

Recognizing the importance of international cooperation in combating desertification, the Union of Myanmar signed the Instrument of Accession and became a party to the UNCCD in April 1997.

Preparation of the National Report was initiated by the National Commission for Environmental Affairs (NCEA) and the efforts were intensified in December 1999 with the formation of a Steering Committee comprising 21 members from the various departments and agencies concerned. The National Report is being prepared with the active participation of the various line ministries and departments as well as the NGOs. A workshop will be convened at the end of April to discuss the report in detail.

Activities for Combating Desertification in Myanmar

1. In order to focus entirely on and speed up greening activities in the dry zone, the Dry Zone Greening Department (DZGD) was established under the Ministry of Forestry in September 1997. The DZGD has been implementing programmes and activities to combat desertification in the dry zone in accordance with the Myanmar Forest Policy 1995 which sets out six imperatives, including protection of soil, water, wildlife, biodiversity and environment; sustainability of forest resources to ensure perpetual supply of both tangible and intangible benefits accrued from the forests for the present and future generations; basic needs of the people for fuel, shelter, food and recreation; efficiency to harness in the socio-environmentally friendly manner, the full economic potential of the forest

resources; participation of the people in the conservation and utilization of the forests; public awareness about the vital role of the forests in the well-being and socio-economic development of the nation.

2. Under the Greening Project, the annual plantation target of 35,000 acres is to be carried out over the period from 1997-1998 to 2000-2001. In 1998-1999, DZGD planted a total of 35,287 acres comprising 18,280 acres of village forests, 8,920 acres of watershed plantations, 2,900 acres to green mountains, 137 acres for research purpose and 5,050 acres of woodlots. Under the Dry Zone Master Plan a target has been set to plant 1050,000 acres during the 30-year period from 2001-02 to 2030-31. In 1999-2000, DZGD planted a total of 35,040 acres comprising 13,257 acres of village forests, 14,700 acres of watershed plantations, 2,700 acres to green mountains, 133 acres for research purpose and 4,250 acres of woodlots.

3. About 1.82 million acres of degraded forests and about 2.8 million acres of forest have been identified in the Dry Zones as affected by shifting cultivation. Protection against human interference and fire has been found to be very effective in improving degraded forest. Degraded forests considered to be capable of improving naturally are, therefore, protected by forests guards permanently stationed along the borders. Fire lines and inspection paths are constructed for efficient fire prevention. Of these, priority areas are identified and a total of 100,000 acres of natural forests had been especially protected each year since 1997-98. Natural Regeneration method was implemented in 10,000 acres in 1997-98, 15,000 acres in 1998-99 and 20,000 acres would be implemented in 1999-2000.

4. Illegal cutting of trees for firewood and charcoal has been one of the major causes of deforestation and forest degradation in Myanmar. In support of forest protection and conservation, fuelwood substitution has been identified as a main task of the DZGD. Three activities are included in this task, namely, (a) Distribution of fuel-efficient stoves; (b) Promotion of fuel briquette production and utilization; (c) Utilization of agricultural residues. Community Multi-purpose Fuelwood Woodlot Project was one of the UNDP/FAO funded projects which established a number of fuelwood woodlots and village nurseries in the arid zone for regreening purpose and for supplying fuelwood to local people.

5. Rain falls only for a few days annually and water is very scarce in the Dry Zone. This constitutes the biggest obstacle for greening the Dry Zone. It is thus imperative to construct check dams and ponds to collect rainwater, and to tap underground and river waters by pumping in order to promote greening activities and the local needs. In the year 1998-99, the DZGD has been able to construct 170 ponds and 12 tube wells. The Myingyan District Watershed Mountains Greening Special Project (1996-97 to 1998-99) was implemented by the Ministry of Forestry. Myingyan District is one of the driest regions in Central Myanmar. Sustainable agriculture in the dry zone of Central Myanmar has also been implemented by the Ministry of Agriculture and Irrigation including water resource management programmes and projects.

6. The Environmentally Sustainable Food Security and Micro Income Opportunities in the Dry Zone Project funded by UNDP/FAO was implemented jointly by the Ministry of Forestry, Ministry of Agriculture and Irrigation , the Ministry of Livestock and Fisheries.

7. The DZGD has also been implementing the following projects in cooperation with:

(i) Yomiuri NGO from Japan in Afforestation Project in Nyaung-Oo District;

(ii) Japan International Forestry Promotion and Co-operation Agency (JIFPRO) in Afforestation Project in Nyaung-Oo District;

(iii) Korea International Co-operation Agency (KOICA) in Dry Zone Greening Project in Nyaung-Oo District; and

(iv) Organization for industrial Spiritual and Cultural Advancement International (OISCA-International) in Greening Project in Pakkoku District.

Conclusion

Myanmar has initiated a number of approaches towards combating desertification, such as: policy and legislative measures, reafforestation schemes, community forestry, special greening projects, national tree planting campaign, promotion of the use of efficient cooking stoves.

With the availability of more financial and technical support from the international community, activities for combating desertification in Myanmar could make greater progress.

NEPAL

This report has been prepared under the guidance of the Inter-Agency Steering Committee and two working groups and the outcomes of the national seminar.

Background Information

Nepal, roughly rectangular in shape, has a total area of 147,181 sq. km and an estimated population of 22.367 million in 1999. Uneven distribution of human and livestock population has exerted pressure on natural resources, particularly on land and forests. In broader perspective, about 59 per cent of the total land is steep or very steep, and 22 per cent has moderate to steep slopes. These areas are prone to soil erosion and landslide. Nepal's intra-Himalayan high basins receive less than 500 mm of precipitation a year. Evapo-transpiration is high in the western Terai, and the ratio of annual precipitation to potential evapo-transpiration ranges from 0.02 in the trans-Himalayan region to 2.99 in high rainfall area, the Pokhara Valley. About 10,000 ha in highlands in West Nepal experience the desertification problem and areas of desert-like conditions are spreading in the trans-Himalayan region. Some areas also experience seasonal drought. Based on soil erosion and landslide information, about 13.6 per cent of the total watersheds are in very

poor to fair conditions. Furthermore, about 1.8 million tons of plant nutrients are removed by crop harvesting (0.5 million tons) and the soil erosion process (1.3 million tons) each year. Out of this, only 0.3 million tons are replenished by organic and mineral fertilizers. This has affected production of major crops which have not increased at par with the use of agri-inputs such as fertilizer, improved seeds and irrigation facilities.

The climatic and physiographic variations and fragile geology are major factors for the loss of nutrient rich top soil, landslide, and flood. The problem is compounded by high population growth, rural poverty, over-grazing, shifting cultivation and use of fertile land for infrastructure development, settlement expansion, and establishment of social service facilities. Poverty has further accelerated the land degradation problem.

In order to address these concerns, policies and programmes have been formulated and implemented with the long-term objectives of promoting sustainable use of resources to alleviate poverty and bringing different stakeholders in the mainstream of sustainable development. Nepal has also joined the international environmental movement as a Party to 16 Conventions, including the United Nations Convention to Combat Desertification (UNCCD). The UNCCD entered into force in Nepal on 13 January 1997, and Nepal is implementing the Convention by establishing its linkages with the United Nations Framework Convention on Climate Change and the Convention on Biological Diversity.

Sustainable Development Plans and Priorities

Nepal has a long-term vision of involving stakeholders in natural resource management to alleviate poverty. In the mid-1980s, Nepal further stressed the need for halting the expansion of desert-like conditions in the mountains and launched massive afforestation and soil conservation and watershed management activities. Since then, a concept of land management and sustainable resources' use has been integrated into national development plans to alleviate poverty along with the integration of environmental assessment system in major infrastructure projects. The current Ninth Plan (1997-2002) has the single objective of poverty alleviation, and it emphasizes the importance of soil and water conservation. The Plan has placed agriculture and forestry sector as the first priority. The Plan recognizes poverty and unmet needs of the people as a challenge for environmental management and sustainable development. Furthermore, the Plan also emphasizes, *inter alia*, to enhance community participation in natural resource management, and encourage cultivation of perennial crops in slopes and environmentally sensitive areas.

Nepal is implementing the National Conservation Strategy and Forestry Sector Master Plan, Agricultural Perspective Plan and Environmental Policy and Action Plan through institutional and legal reforms. The plans aim to protect land against degradation by soil erosion, floods, landslides, desertification and other phenomena of ecological imbalance. Policies and programmes related to combating desertification are also included in the draft National Agenda 21 which emphasizes the need for integrating poverty alleviation issues into the mainstream of social and economic development process by, *inter alia*, reforming land tenure system, and accelerating forest and soil conservation activities. It also emphasizes the need for strengthening the role of women, youth, indigenous people, NGOs and CBOs and individual farmers in natural resource management.

Land related issues have also been a part of sectoral policies such as of forestry, hydropower and irrigation, industry, tourism and housing sectors. Recently, policy directives have been issued to enact legislation, and develop procedures for the implementation of the Conventions. Prior to UNCCD, the problems of desertification and desert-like conditions were recognized, and His Majesty's Government of Nepal (HMG/N) formulated policies and programmes to discourage cultivation in marginal land encouraging people at the same time, in converting such land into forest and grazing fields. Besides the policy formulation and implementation, Nepal has a long tradition of natural resource management, and this indigenous practice has been promoted for community participation through policy and legal measures. In a nutshell, the strategic thrust is to alleviate poverty, ensure sustainable use of natural resources, and minimize pressure on land and water systems with people's participation, and enhance involvement of NGOs, CBOs, women and youth.

Institutional and Legal Measures

- **National Coordinating Body**

In the process of integrating environmental aspects into development programmes, HMG/N established the Ministry of Population and Environment (MOPE) in September 1995 which acts as the National Coordinating Body (NCB) for environmental matters and Conventions. The Ministry functions as a monitor, facilitator and coordinator and is also responsible for, *inter alia*, the formulation and implementation of policies, plans, programmes and legislation. It also acts as the national and international focal point in the domain of environment. Furthermore, the Ministry is responsible for the institutionalization of the environmental impact assessment (EIA) system, maintenance of environment conservation areas, and operation of an Environment Protection Fund (EPF) as per the Environment Protection Act (EPA), 1996 and the Environment Protection Rules (EPR), 1997. MOPE is also the Focal Point for UNCCD and implements other environment-related Conventions as well. As NCB, the Ministry has the legal personality and it operates within the budgetary provisions approved by the Government. It also has authority to implement different policies and programmes. MOPE has interdisciplinary staff, and it carries out environmental activities by following annual work plans and timetables. It follows the established mechanism for supervision, control and evaluation.

On the other hand, HMG/N has constituted the Environment Protection Council (EPC) under the chairmanship of the Right Hon'ble Prime Minister to provide policy guidance and advise the Government on environmental matters. The Council comprises a mix of policy- and decision-makers, professionals, academicians, entrepreneurs, representatives of political parties and local bodies, and government nominated experts. MOPE functions as the Secretariat of the Council.

MOPE has a satellite-based MERCURE system and is planning to host a Web site for sharing information on land degradation and desertification. This has provided access to the Internet and Web sites. Under the MERCURE system, internal networking has been maintained and inter-agency networking has been planned. Other organizations dealing with forests, soil conservation, and agriculture, including the Nepal Agriculture Research Council (NARC) and the

International Centre for Integrated Mountain Development (ICIMOD), also have databases which will be very useful for the NAP process.

- **Institutional Framework for Coherent and Functional Desertification Control**

MOPE is in the process of establishing a Steering Committee (SC) for the fulfilment of obligations of Nepal as a Party to environment-related Conventions. This SC will strengthen linkages between the UNFCCC, CBD and UNCCD and implement activities through a coordinated approach. Furthermore, HMG/N has continued its efforts to strengthen NGOs and CBOs, particularly the legally recognized Community Forestry User Groups (CFUGs), and Water Users Associations (WUAs), including Community Soil Conservation User Groups (CSCUGs), and Buffer Zone Management Users Groups (BZMUGs) to implement natural resource management activities all over the country. HMG/N has also planned to provide soil and water conservation services all over the country by the year 2002 and to continue the process of handing over the State-managed forest to community forestry user groups for its conservation and sustainable use. Institutional strengthening of local NGOs and CBOs is a key to enhance their absorbing capacity over the local funds operated to implement natural resources management programmes.

- **NAP as Part of the National Economic and Social Development Plan**

Although rehabilitation of degraded land has been an integral part of the national development plan, desert-like areas are expanding due to accelerated land degradation, soil erosion, landslide, alkalinity and salinity in the agricultural land. This issue has been raised at the national level which has contributed in identifying priority programmes for the National Action Programme (NAP) process. The issues are periodically reviewed, and the reviews indicate that existing plans and policies emphasize the need for empowering local people in natural resource management. The problems of land degradation and its social and economic consequences have been reflected in development plans and programmes, and the NAP process will further mainstream the integration of land and water management aspects with the national social and economic planning process.

Issues of land degradation have also been accommodated in the regional programmes such as the South Asian Association for Regional Cooperation (SAARC) Plan of Action on the environment and food reserve, South Asia Cooperative Environment Program's (SACEP) land-based pollution study, and ICIMOD's mountain resources conservation programmes. The NAP process will be further linked with relevant subregional and regional action programmes in the spirit of the Convention.

- **Coherent and Functional Legal and Regulatory Framework**

Legislation has been implemented for the conservation and sustainable use of natural resources, particularly the forest, land and water. The Constitution of the Kingdom of Nepal, 1990, emphasizes environment management and economic progress of the people by raising agricultural productivity, through, *inter alia*, land reform programmes. The EPA, 1996 and EPR, 1997 and other legal instruments such as Muluki Ain, Aquatic Life Protection Act, National Parks and Wildlife Conservation Act, King Mahendra Trust for Nature Conservation Act,

Water Resources Act, Forest Act, and Local Self Governance Act also emphasize resource management, land-use regulation and people's empowerment. The legislation also provides for certain a percentage of income accrued from resource conservation for community development.

A review of existing legal regime also indicates that legislation in the field of forests, wildlife, water resources, environmental and local governance is forward looking as it opens avenues for public participation and people's empowerment in cost and benefit sharing. For example, the Forest Act, 1992 (amendment 1998) contains provisions to invest 25 per cent of the total earnings from community forests in forest management. The National Parks and Wildlife Conservation Act, 1973 (amendment 1993) empowers the Government to allocate 30 to 50 per cent of the total revenue collected in the protected areas for community development. Similarly, the Local Self Governance Act, 1999 empowers the local bodies to manage and use natural resources, collect revenue and utilize in resource management. However, the existing legislation will be further reviewed extensively as a part of the NAP process to ensure a coherent and functional legal and regulatory framework for UNCCD implementation.

Participatory Process for Preparation and Implementation of the Action Programme

- **Effective Participation of Actors involved in Defining NAP Priorities**

In the spirit of the Convention, the key actors and/or stakeholders have been identified. They comprise government organizations, non-governmental organizations (NGOs) and community based organizations (CBOs), the private sector, academia, media, youth and women. Some organizations such as SchEMS (School of Environmental Management and Sustainable Development), IUCN (The World Conservation Union) and NEFEJ (Nepal Forum of Environmental Journalists) have affiliated with MOPE for the implementation of environmental programmes. A number of public awareness programmes have been launched by governmental and non-governmental organizations through radio and television, and publication and distribution of items such as the State of the Environment Report, posters, pamphlets, news clips, to cater to the information needs of the local people have taken place. Environment courses have also been included in the formal education at primary, secondary and tertiary levels.

Public awareness has been enhanced by organizing meetings with the press, launching programmes for parliamentarians and trainer's training in environment management, and by celebrating World Days on environment, desertification and biodiversity, including forest and soil conservation days at the local level. With regard to desertification, MOPE organized a national seminar in 1997 which recommended, *inter alia*, various actions for the NAP process including the identification and assessment of hot spots, promotion of community forests and livestock stall-feeding, rehabilitation of degraded land, strengthening of institutional capacity, and mobilization of NGOs, CBOs, and mass media.

Policies and strategies have also been formulated to involve women and youth in the mainstream of national development through the user group mobilization approach. Similar policies exist to avoid or minimize gender imbalance, and enhance women empowerment through increased access to training, income generating (IG) activities, credit and resources. Women, NGOs and CBOs are equally involved in the consultation process during programme identification, design and implementation at various levels. The public

awareness programme has increased uptake at both the local and national levels, and this is reflected in policies and legislation, particularly in empowering the community groups in resource management.

NAP Consultative Process and Partnership Arrangement

Nepal has received some funding from developed countries such as Australia, Denmark, Finland, Germany, Japan, USA, and Switzerland. Various international agencies such as UNDP, UNEP, EU and IFAD are also providing support for the implementation of forestry, agriculture, and soil and watershed management activities, and rehabilitation of degraded lands. Nepal has yet to receive assistance for the preparation and implementation of the NAP. MOPE has formed an Environment Coordination Group (ECG) to discuss the environment-related matters with the donor community. It is hoped that informal consultation and exchange of information will enhance cooperation and partnership to implement the spirit of the Convention.

Measures Taken or Planned for NAP

- **Adequate Diagnosis of Past Experience**

Land degradation problems have been continuously identified while formulating sectoral plans and programmes. Experiences gained in soil and water conservation, soil fertility improvement and forest management emphasize further launching of land improvement programmes with people's participation and empowerment.

MOPE has also conducted a study to develop a broad-based programme with regard to the implementation of the UNCCD. The study identified priorities for a national plan of action and recommended to formulate a national policy-cum-management system, and establish a National Committee. The study also recommended to launch programmes such as awareness raising, training and capacity-building, communication and participatory processes, and emergency preparedness to implement the provisions of the Convention. The study has further recommended to upgrade knowledge and information base, launch soil and water conservation and afforestation activities intensively, develop and promote agro-pastoral system, develop comprehensive anti-desertification programme integrated with national environment and development plans, develop drought preparedness and drought relief and self-help schemes. A study is ongoing to draft the national policy and programme of action to combat desertification and drought, and it will be completed by July 2000. Other studies have also been carried out to analyse problems, causes and consequences of land degradation. The study findings will be a basis for NAP formulation.

- **Established Technical Programmes and Functional Projects to Combat Desertification**

Ongoing projects and programmes in relation to UNCCD priorities have been reviewed to derive a set of activities to facilitate the NAP process. They indicate possibilities to tie up with soil and water conservation activities. Land degradation issues have also been integrated into development projects including road and hydro-electricity development projects through the EIA system. People's empowerment has been enhanced through skills enhancement training and capacity-building activities at different levels.

- **Action Programme Implemented in Compliance with Priority Fields set out in the Convention**

Soil and water conservation activities are implemented in different parts of the country. Priority areas have been identified through consultative processes and studies. Ongoing actions on the establishment of a functional network of district level organizations for the implementation of forestry and agriculture related activities will further mainstream the NAP process at the field level. However, there is a shortage of financial resources to mobilize the local level institutions and improve their efficiency.

Although land degradation and forest depletion issues are in the forefront of public awareness programmes, there is still a need for wider coverage at the local level and to enhance their capacity in monitoring and evaluation programmes. At present, soil and watershed demonstration and research plots have been used to monitor soil erosion and the process of land degradation at different ecological zones.

As the resource conservation programme takes time to have economic benefits, income generating activities have been introduced as incentives for people's involvement. Also, a benefit sharing mechanism has been institutionalized to enhance the participation of community user groups in forest and park management, and irrigation water management.

- **Linkage Achieved with Subregional and Regional Action Programmes**

Nepal has been a part of the SAARC Regional Action Plan on Environment and Watershed Management in Asia and Asian WATMANET. The latter project is designed for human resource development in participatory watershed management, particularly for the sustainable use and management of forests, soil, water and other natural resources. Some research and scientific organizations are involved in developing programmes for regional studies, particularly on medicinal herb, biodiversity and people and resources dynamics.

- **Effectiveness of Measures in Local Capacity-Building**

The introduction of community and leasehold forestry programmes, buffer zone management and water conservation through users mobilization has been instrumental in local capacity-building in managing forests, soil and water. This has achieved a greater degree of responsibility among users. This has also enhanced the mobilization of women and youth to group work in resource management. In the forestry sector, about 0.650 million ha of forest have been managed by over 9,000 legally recognized user groups. This has benefited about 1 million people. Through this process, a feeling of ownership has been developed, and it will have a long-term impact on resource conservation.

Public participation has been promoted also through environmental legislation as the proponent has to issue a public notice for 15 days before the preparation of the Scoping Report, and conduct a public hearing before the finalization of the EIA report. MOPE has also to issue a public notice 30 days before the approval of the EIA report of any prescribed proposal. Furthermore, these activities are monitored and evaluated by the concerned agencies. The present practice of empowering the community groups has emphasized self-monitoring and evaluation. In EPF-funded activities, local governments and

educational institutions have been involved in supervision and monitoring activities.

- **Partnership Agreements Applied**

In Nepal, partnership agreements between the Government and CBOs have been ensured in forests and soil conservation activities and irrigation water management. Efforts are also made to establish a partnership in mobilizing EPF and other funding sources to implement selected activities by NGOs and CBOs. This partnership will be further strengthened during the NAP process. This partnership will also streamline the implementation of the relevant conventions such as UNCCD, UNFCCC and CBD through coordinated efforts.

So far, Nepal has mobilized about US$13,000 to collect background information for the implementation of the Convention.

Financial Allocations

- **Adopted Financial Mechanism**

Nepal is continuously spending a reasonable amount of money for the implementation of soil and forest management activities, and soil fertility improvement programmes through both national and international funding. NGOs and CBOs have access to EPF and other sources of funding. Local actors are informed about the availability of funding. However, these sources have limited funds and are unable to finance the services as required. In addition, community user groups have also access to government funds up to about 50 per cent of the estimated budget for the implementation of on-farm conservation activities, 30 to 50 per cent of the total revenue generated in the protected areas and at least 5 per cent in irrigation development. However, Nepal has yet to access local/private sector funds for the NAP process. HMG/N is reviewing its administrative procedures and organizational set-up to develop a new set of rules for the administration of EPF.

- **NAP Financing**

Nepal is collecting necessary information for NAP formulation and a strategy has yet to be developed for accessing the national and international funding sources, including Global Mechanism (GM). So far, the UNCCD secretariat has provided a total of US$13,000 to organize a national seminar in 1997 and to prepare this report. An NGO, SAP Nepal, has also received seed money from UNEP to prepare a case study for the UNEP Asia specific study on land tenure, environmental degradation and desertification in the dry lands of Asia.

- **Technical Cooperation Developed**

Nepal has yet to request technical cooperation. In the beginning, Nepal requires technical and financial assistance for public awareness, capacity-building and information exchange system, preparation of inventories of traditional knowledge, know-how, practices and technologies, identification of hot spots, partnership building and private sector involvement as part of the NAP process. Technical assistance is also required to strengthen the process of community empowerment in resource management. In order to implement these

activities in the spirit of the Convention, an estimated amount of US$915,000 is expected from the donor community.

Benchmarks and Indicators

- **Operational Mechanisms for Monitoring and Evaluation**

In Nepal, environmental monitoring and evaluation has been an integral part of programme monitoring as per the EPA, 1996 and EPR, 1997. Environmental auditing is also in process. The line agencies have established a monitoring and evaluation unit to monitor the project performance and its impact on the environment. In general, project specific indicators are developed, monitored and evaluated through built-in systems. In addition, sectoral agencies have started monitoring soil loss in representative ecological zones. Five demonstration centres and several research sites have been established so far for this purpose. Monitoring and evaluation information is used to strengthen the data bank on the status and trend of natural resources.

Information relevant to desertification control and resource management and utilization is published in State of the Environment (SOE), and national seminar proceedings. A number of publications of governmental and non-governmental organizations also contain information on the status and trend of land degradation in Nepal, and they are disseminated through print and electronic media.

As per the Constitution of the Kingdom of Nepal, 1990, every citizen has the constitutional right to information and has an access to available information. In order to expedite information sharing, informatory reports are regularly published to meet the demand of the users.

In a nutshell, Nepal is collecting necessary information for the NAP process. Nepal expects technical and financial assistance from the developed country Parties and multilateral donor agencies to prepare the NAP through extensive consultations. It will be implemented with people's participation. Existing environmental policies and programmes are geared to alleviate poverty which is one of the major thrusts of the Convention.

NIUE

Executive Summary

(i) National plans and strategies available in other social and economic areas. The National Strategic Plan is currently being implemented as from 1998. This plan highlights the importance of sustainable development including areas relevant to the combating of land degradation. In addition, there are other plans, which include the Land and Marine Resource Use Plan, and the Environment Management Plan, both of which have been formulated and have yet to be implemented.

(ii) National plans and strategies in the field of combating desertification developed prior to the UNCCD.

Prior to the formulation of UNCCD, National Strategic Plans for Niue have always been directed at sustainable development. However, no specific strategies have been formulated in the field of combating desertification.

(iii) Established and Functional National Coordination Bodies (NCB) and the role of National Focal Points (NFP).

The National Focal Points are External Affairs and the Department of Agriculture, Forestry and Fisheries (DAFF), both of which were officially nominated by the Government of Niue. They have very limited legal capacity and resources (i.e. human, financial and material). The National Co-ordinating Body (nominated by the National Focal Points) reflected a cross sectorial and multidisciplinary representation which include both Non-governmental Organizations and Government Organizations.

(iv) National Action Plans (NAP) as part of the National Economic and Social Development and Environment Protection Plans.

The outcome of this report highlights the need for strengthening of areas to combat land degradation, which can be incorporated into Niue's National Economic and Social Development and Environment Protection Plans.

(v) Coherent and functional legal and regulatory framework.

Niue's environmental laws are spread through a range of sector-specific legislation.

A draft Environment Management Bill (Govt. of Niue 1992) has been prepared and is intended to create a consolidated body of environment laws. This bill deals with the following issues:

(a) Establishment of a Conservation Council, a conservation service and conservation officers;
(b) Preparation of management plans relating to area management (such as protected areas) and a range of environmental issues (such as soil erosion, pollution, wildlife);
(c) Coastal zone management;
(d) Pollution of sea and waters; and
(e) Litter control.

(vi) Effective participation of actors in defining national priorities.

Although Niue has a small population with limited resources, information is readily disseminated through media such as radio, television and Village Council meetings. The two schools (Primary and Secondary) actively participate in teaching environmental issues. Awareness programme methods and activities utilized by the Biodiversity and climate change National Action programmes implemented to highlight combating land degradation issues.

(vii) Effective support from international partners for cooperation.

Various organizations such as AusAid, New Zealand Overseas Development Assistance (NZODA), United Nations Development Programme (UNDP) etc. have supported projects that although not specific for UNCCD, deal with issues relating to combating land degradation. The developmental projects have yet to identify relevant international partners for specific activities related to combating land degradation. With Niue recently a member of FAO, most of these specific activities will be investigated.

(viii) Adequate diagnosis of past experiences.
As stated earlier, there have been no specific activities undertaken in the field of combating land degradation. However, various feasibility studies in the past have been towards sustainable development. For example, the development of the Vanilla Industry, NZODA Forestry Project, Development of the Nonu Industry (draft), to name a few.

(ix) Action Programmes implemented in compliance with priority fields set out in the Convention.
Due to ongoing sustainable developmental programmes, a majority of measures identified in Article 4 of the Regional Implementation Annex for Asia of UNCCD have already been incorporated, thus avoiding duplication.

(x) Linkages achieved with sub-regional and regional action programmes (SRAP, RAP).
Various regional and sub-regional action programmes are currently ongoing which deal with sustainable development and raising the level of environmental awareness. However, these are not specifically targeted at combating land degradation. Such programmes are Biodiversity, Climate Change, SPREP-Niue Environmental Management Strategy, SPREP - State of the Environment Report.

(xi) Effectiveness of measures in local capacity building.
The Climate Change and the Biodiversity projects, both have Capacity Building components incorporated which are relevant to UNCCD issues. In addition, Niue has the capacity dealing with environmental law issues and land and marine resource management. Therefore, ensuring sustainable development.

(xii) Adopted financial mechanisms.
Land degradation is of concern to Niue and the majority of Aid projects incorporate this issue. Due to financial constraints, the Government is only able to offer assistance through its human resource pool. The majority of developmental projects that are in line with combating land degradation have been funded externally, the majority of which include technical support. Hence, minimal financial support was required from the Government of Niue.

OMAN

The Sultanate of Oman is located on the part of the Mass known as the Arabian Peninsula, which is classified according to the World Atlas of Desertification (UNEP, 1992) as mostly hyper-arid and arid in parts. 95 per cent of Oman is either climatic desert or more than moderately affected by desertification.

His Majesty Sultana Qaboos bin Said, Sultan of Oman, has placed special emphasis on the conservation and protection of the environment of Oman, since it constitutes an important pillar of development thereby safeguarding living standards of the people of Oman. The achievement of socio-economic development depends on the existence of an enabling environment. Thus the objective of development must lead to attaining the balance between people's welfare and conservation of natural resources. Oman has realized the importance of the conservation of the environment, natural resources and their optimum utilization for the benefit of the present and future generations in a sustainable manner through the following:

- Formulation of environmental legislation;

- Provision of administrative and technical bodies to ensure enforcement of the laws;

- To train, develop and qualify technical staff required to deal with these aspects;

- Special consideration was given in the Sultanate of Oman to the problem of desertification in general, and the degradation of some of its agricultural lands in particular.

PAKISTAN

Pakistan is predominantly an arid and semi-arid country and is threatened with desertification and degradation of land due to rapid increase in population and growing pressure on the natural resource base to meet the needs of the people. Pakistan signed the United Nations Convention to Combat Desertification in October 1994, which was ratified in February 1997.

As agreed by the countries which are Parties to the Convention, a National Action Programme (NAP) to Combat Desertification with the financial support of UNEP and ESCAP has been prepared which is in the process of revision, with the consultation and participation of all stakeholders.

The first national report of the UNCCD implementation briefly highlights the activities undertaken and the action, completed for the implementation of UNCCD, not only during the last three years but prior to that as well, in so far as they relate to the steps taken to address issues and concerns of desertification/land degradation in general and the specific measures to be adopted under the Convention. These are described in the following paragraphs.

Strategies and Priorities established within the framework of sustainable development plans and/or priorities

Activities like soil and water conservation, dryland afforestation, and rehabilitation of degraded rangelands and saline areas have been part of the programmes of line agencies since independence (1947) and even during British rule. The turning point in the awareness and need for serious thinking and concerted efforts to address problems relating to desertification/land degradation came in the late 1960s/early 1970s. The earlier projects, however, lacked community participation perspectives and imperatives. Earlier strategies and policy initiatives to address serious issues of land degradation and resource conservation resulted in the compilation and preparation of the National Commission Report on Agriculture (1988), the Forestry Sector Master Plan (1992) the National Conservation Strategy (1992), Sarhad (NWFP) Conservation Strategy (1996) and the National Master Agricultural Research Plan (1996). These documents have already resulted in widespread acceptance of the principles of sustainable development; broader realization of the importance of natural resources and proper land use; new ways of working between sectors, institutions and disciplines; methodologies for consulting, communities, NGOs; involvement of women and group of Pakistan policy analysis experts. Pakistan has also signed and ratified the United Nations Convention on Biological

Diversity. A climate change impact assessment and adaptation strategies study was completed in 1998.

Institutional measures taken to implement the Convention

A National Coordination Committee on Desertification (NCCD) was constituted in the Ministry of Environment, Local Government and Rural development (MELGRD) in 1998. Membership of this committee has now been revised. This committee will promote education, public awareness and capacity-building, review and update the NAP, strengthen inter-agency coordination and implementation of the specific programmes for combating desertification. It is a committee which comprises different government, provincial, private sector and NGO representatives. Scientists and university teachers are also represented. NCCD is served by a technical staff of four professional persons. The National Focal Point (NFP) is the Director General, Ministry of Environment. This ministry is responsible for formulation, coordination and implementation of policies relating to environmental issues. Reconstitution of NCCD by raising its status with a federal minister as its chairperson has been proposed. NCCD will be served by a separate wing/cell for desertification control/arid lands development, which will be the new NFP. The relocation of NCCD in another ministry of the Federal Government is another possibility depending upon the approval of the NAP. There is no separate budget for NCCD and the core budget of MOELG&RD is being utilized for routine activities. NCCD will become fully functional once the NAP is approved. The National Committee will be assisted by three subcommittees, that is: (a) technical committee; (b) budget and finance committee; and (c) information extension and communication committee.

The National Conservancy Strategy has reviewed the mechanism for coordination and harmonization of action to implement policy and programmes. It sets forth the beginning of a plan to integrate environmental concerns into virtually every aspect of economic life. The achievement to strengthen the institutional mechanism are: an Environmental Protection Act was promulgated in 1997, participation of women has increased, training is being developed in environmental assessment, an independent sustainable policy institute has been established, the Federal and provincial Governments have established environment sections in their planning departments which will facilitate the integration of NAP with national and provincial development plans. A beginning has been made in organizational development starting with the agencies most concerned with environment and natural resource management. Government has recently announced its new policy of decentralization and devolution of powers by establishing district governments of elected representatives at a lower level to plan, approve and undertake projects of socio-economic and rural development at local level.

Various forums already exist in the country for coordination which will facilitate the NAP. These include the National Economic Coordination Committee. There are a number of other central, provincial and departmental working parties for this purpose.

The issue of capacity- and institutional-building has been addressed through the reports of various commissions and plans referred in foregoing paragraphs. Existing research and development institutes will facilitate the implementation of NAP and make its structure operational. Priority is being given in the national development plan (9th five-year plan) which is being

prepared, for allocating resources for projects to be formed under NAP for halting land degradation, resource conservation, social action programmes and poverty alleviation. New district governments to be formed under the decentralization policy of the Government will get grants and also generate funds by taxation at the local level. Such projects of desertification control and resource conservation/management will get priority in terms of financial allocation from the elected representatives.

The existing plans and strategies have been reviewed and analysed to ensure complementary action to avoid duplication. The objectives and scope of proposed programmes have been spelled out clearly and a system of diagnostic and feasibility appraisal exists at federal and provincial levels which will be further strengthened.

UNCCD principles are fully acknowledged and recognized in the National Plan and other sectoral plans/schemes. The Government is determined and committed to principles of people's participation partnership and coordination at all levels and to focus resources where they are needed.

Besides the "Constitution of Islamic Republic of Pakistan" and Pakistan Penal Code, there are ordinances, rules, acts and regulations for items such as land use, water quality, air quality, marine and fisheries, and forest conservation. A significant measure for natural resource conservation and environment is the promulgation of Pakistan Environmental Protection Act (1997) in order to ensure a greater involvement of responsibility of local population NGOs and public and private sector. An Environmental Protection Council has also been established to coordinate and supervise enforcement of the provisions of the ordinance.

Participatory process in support of preparation of action programmes

There has been a continuous process of defining priorities through consultation for sustainable use of natural resources which started in 1973 and continued through 1988 and 1992 by the National Commission on Agriculture, National Conservation Strategy and Forestry Sector Master Plan. The priorities have been reviewed and revised as a result of consensus developed through an earlier US-Pakistan Joint Seminar on Arid Land and Desertification in 1986. A national seminar and a workshop for reviewing the draft NAP were organized in 1994 and 1997. The new units/cells of Desertification Control Programmes at federal and provincial levels and subcommittees of NCCD will ensure exchange, circulation transfer and dissemination of the information to create awareness.

Consultative process in support of the preparation and implementation of NAP

NAP has been prepared with the financial support of UNEP and ESCAP. Once it is approved, help and involvement of international partners will be sought for implementation. Mechanism is already available for consultation with such organizations.

Measures taken or planned within the framework of NAP

Authors of the NAP programme relied on the diagnosis of past experience described in the national commission reports sectoral plans and conservation strategy and their own knowledge and experience.

In the backdrop of the constitutional authority and powers of the Federal and provincial Governments, NAP's implementation and programmes defined therein will, by and large, be carried out by the provincial line departments, local government departments and rural support programmes with the involvement of community organizations and NGOs. National and provincial desertification control units/cells and NCCD will facilitate the integration of new and ongoing activities by working in harmony with provincial line agencies and other organizations involved. Implementation of projects jointly with a multi-disciplinary approach by participation of all the agencies involved will be attempted.

There are proposals and programmes to strengthen capacity at local level through short term professional training and farmers training. However, these activities, to a limited extent, are being carried out even now under rural support programmes.

A NAP document has been compiled with the participation and involvement of national, provincial/regional organizations and scientists who were consulted through workshops and seminars. Linkage developed during the formulation phase will be formalized through the provincial and national desertification committees. Relevant scientific networks at national, provincial and regional level will be strengthened.

To empower the people at grass-roots level, new district governments and local councils to be established will facilitate transfer of authority and responsibility to manage and develop natural resources on sustainable basis at the local level, according to the needs and aspiration of the people. Environmental NGOs and rural support programmes will also be involved in organizing the communities.

A well-defined, elaborated and well-developed financial mechanism exists in the country for the access of all the actors. The same mechanism will be used for placing funds at the disposal of different actors for implementation. National and provincial desertification committees and the desertification control cells/units will facilitate transfer of funds and help in cutting out delays and sorting out problems, if any. In addition to the National Desertification Fund, the others sources to ensure financing for combating desertification will be non-development/core budget of departments/ministries, development budget through annual development programmes, donor assistance, funds raised by the community organization for self-help and funds generated by taxation by the local councils.

Benefits of investment in environmental projects of halting land degradation and conservation of natural resources are in most cases indirect and hard to quantify in terms of monetary value. Benefits of such activities under NAP are visualized in terms of direct and indirect benefits to the society and the nation as a whole.

Funds are being provided at present for implementing resource management and development projects by the European Union, GEF , FAO and UNDP and other donors. These projects are being implemented by Government Institutions, IUCN and WWF.

Technical cooperation is needed to improve and develop the capacity in remote sensing, early-warning, assessment and mapping of desertification, management of information systems, monitoring, evaluation and impact assessment. Review of benchmarks and indicators utilized to measure progress: There is no developed and formal national environmental and evaluation system. Federal and provincial planning departments monitor and evaluate environmental projects and programmes through a system of periodic reports and review meetings. Institutes at operational level also have a system of review and evaluation through reports and field visits. The capacity of producing impact indicators and harmonizing existing information is limited. This capacity will be developed through technical assistance under the NAP.

In conclusion, the Government of Pakistan is committed and determined to implement UNCCD steps and initiatives already taken or those under way in this direction including: several policies, institutional and legal reforms and strategic changes that will facilitate the implementation of NAP; establishment of a NCCD and NFP to coordinate and oversee the implementation of NAP; setting up of a task force on the initiative of UNSO for creating a national desertification fund, preparation of a draft NAP with the involvement and participation and consultation of all stakeholders in a long drawn process of three national workshops and seminars; decentralization and devolution of powers to enable public representatives at a grass-roots level to participate in decision-making that is relevant to combating land degradation; start of a social mobilization process by NGOs and the rural support programmes; enabling some environmental NGOs to create awareness and undertake small projects addressing desertification concerns.

Activities and efforts already under way by several government/private organizations, institutes, departments, NGOs and rural support programmes to combat desertification will be strengthened, integrated and supplemented through a nationally orchestrated, supported, coordinated and monitored system under the NAP. The country is thus on course for full-scale implementation of the UNCCD for the benefit of the people, in general, and the deprived and resource poor rural communities who are threatened and affected by desertification.

PALAU

1. THE STRATEGIES AND PRIORITIES ESTABLISHED WITHIN THE FRAMEWORK OF SUSTAINABLE DEVELOPMENT PLANS AND/OR POLICIES

While the Republic of Palau, with over 2,000 mm of rainfall annually, is not subject to desertification, we have felt the effects of global climate change, and of land degradation due to human activities. Two effects of climate change are of particular concern to Palau: drought due to the El Niño/ENSO phenomenon; and sea level rise. The Republic of Palau is additionally threatened with land degradation due to road building, agricultural expansion, and various other land-clearing and forest cutting activities. Economic development needs to be undertaken in a manner which will not reduce the ability of future generations of Palauans to benefit from Palau's rich natural resources.

The Republic of Palau is located near the global centre of marine biodiversity. Within this small archipelago there are over 1,300 species of fishes, and over 700 species of corals. All of these marine organisms, and the

ecosystems on which they depend, are threatened by small increases in ocean temperatures, which are lethal to many species of corals. In addition, marine ecosystems can be damaged or destroyed by terrestrial activities, which increase soil erosion and/or which add toxic chemicals and other pollutants to the marine ecosystems. Palau also has approximately 200 species of endemic plants; plants found nowhere else on earth. Development activities and climate change may threaten many of these species as well.

The Republic of Palau has just begun to come to grips with the environmental issues raised by the UNCCD. Environmental degradation is a serious threat to this small island nation. Following are a few examples of potential causes of land degradation.

HUMAN ACTIVITIES

While climate change, drought, and sea level rise present significant long-term threats to Palau, human activities pose perhaps the greatest immediate and short-term threat to Palau's natural resources. These human activities include fishing/overfishing, dredging, and numerous terrestrial activities, which can result in damage not only to terrestrial resources, but in pollution and destruction of marine resources as well.

COMPACT ROAD

Construction has just begun on an asphalt road, known as the "Compact Road", planned to encircle Palau's largest island, Babeldaob. While 52 miles of road may not sound like much to most countries in the United Nations, to Palau this is a major project which can impact most of the archipelago. The U.S. Army Corps of Engineers will oversee the construction of the road. Erosion mitigation measures will be taken according to standards developed by a group of local scientists. However, there is widespread concern that erosion mitigation standards may not be closely adhered to; that rare endemic plant and animal species may be destroyed during or following road construction, and that opening previously inaccessible locations to road traffic may result in their degradation.

DROUGHT

Drought is an intermittent issue in Palau, a country with over 2,000 millimetres of rain per year. We learned in 1997-1998, however, that we too could be affected by drought. As a result of the El Niño/Southern Oscillation phenomenon, Palau endured several months with little or no rain. Crops were affected, as was delivery of piped water when reservoirs and streams were depleted. Similar drought conditions were suffered intermittently during 1982-1984, and are likely to occur again, although the timing cannot be predicted.

SEA LEVEL RISE

Another environmental issue of major importance to Palau is the rise in sea level. In the past two years, salt water intrusion into taro paddies has taken place during unusually high tides. We are concerned that this is a trend, and that much of our low-lying land will be rendered unproductive. Since taro (*Colocasia esculenta* and *Cyrtosperma chamissonis*) production is largely the province of women, this phenomenon will profoundly and adversely affect women's

lives and livelihoods, as well as the nutrition and economy of the entire nation.

KED/SAVANNA

Approximately one fourth of Palau's land area, mainly on the island of Babeldaob, is in moderately to steeply sloping grassland, known locally as "ked," and often referred to as savanna lands. These grassland areas are generally sparsely vegetated and highly subject to soil erosion. The soils are low in nutrient content and are generally moderately to highly acidic.

The *ked* areas are also subject to frequent fires during dry periods. The fires further deplete organic matter, and result in greater soil erosion during rains following burning. This cycle of burning and erosion has already resulted in areas completely without vegetation. It is not known whether these areas are expanding, and monitoring is needed. The cycle of burning and erosion not only degrades the land on which it occurs; it also has deleterious effects on low-lying areas, mangrove forests, the lagoon, and eventually the coral reef. Efforts to prevent burning have met with very limited success. These efforts need to be expanded. All of these grassland areas would benefit from afforestation. However, attempts at afforestation have also met with limited success, mainly due to the destruction of tree seedlings by fire.

Most of the rest of Babeldaob is forested and thus protected from erosion, but deforestation would pose serious threats of land degradation.

INVASIVE SPECIES

As an isolated island nation, Palau is threatened with invasion by alien plant and animal species. These invasive plants and animals can disrupt the island ecosystems, crowding out and/or destroying native and endemic species. Palau has recently strengthened its quarantine laws and is upgrading its quarantine staff, but much work remains to be done to prevent further introductions. Work is also needed to control or eradicate invasive species, which have already been introduced.

The Republic of Palau has yet to develop a plan or strategy to directly address desertification and land degradation. However, a number of agencies are currently working in Palau to protect terrestrial and marine resources. In addition, the Palau National Master Development Plan addresses the need to develop Palau's natural resources sustainably.

The UNCCD will provide Palau with a framework for specifically addressing issues related to global climate change, desertification, and land degradation. Palau intends to develop a National Coordinating Body to coordinate and lead these efforts, beginning this year. There is no organized plan or organization at present to deal with these problems. There are, however, several organizations and government agencies which deal with environmental issues. What needs to be done at present is to create an organization/consortium of these organizations and agencies to coordinate efforts among them.

2. THE INSTITUTIONAL MEASURES TAKEN TO IMPLEMENT THE UNCCD

As noted above, no specific measures have been taken to date; Palau has just signed on to the UNCCD, and there has not yet been time to create a National Coordinating Body to lead this effort. The National Master Development Plan (NMDP) will provide a framework within which the NCB can work. Additionally, the President's National Task Force on Agricultural Development has just submitted its final report and recommendations (April 2000). The Government of Japan also has experts in Palau at the present time, contributing to updating the NMDP.

- **PARTICIPATORY PROCESS IN SUPPORT OF THE PREPARATION AND IMPLEMENTATION OF THE NAP**

The national Government is still considering how best to create the NCB, and the makeup of its membership. Among the stakeholders in this process are such government agencies as the Environmental Quality Protection Board, the Ministry of National Resources, the Bureau of Women's Affairs, and others. Non-governmental organizations include the Palau Conservation Society, Palau Community College, the Palau Community Action Agency, the Coral Reef Research Foundation, and several others. Several women's organizations have a stake in climate change, since the women's taro farms are most threatened by rising sea levels.

An inventory of stakeholders must be done; following which will be a series of organizational meetings. The NCB will then be capable of developing the National Action Plan.

- **CONSULTATIVE PROCESS IN SUPPORT OF THE PREPARATION AND IMPLEMENTATION OF THE NAP AND THE PARTNERSHIP AGREEMENT WITH THE DEVELOPED COUNTRY PARTNERS AND OTHER ENTITIES**

The consultative process will be an essential part of the development of a National Action Plan in Palau. We lack expertise in the areas of global climate and climate change, and have limited resources in related areas. Palau will need considerable support and assistance in order to develop an adequate action plan. As Mr. Isaac Soaladaob noted in his statement to the 3rd session of the Conference of the Parties of the UNCCD, Palau wishes to organize an awareness seminar this year, but will need assistance to do so.

- **MEASURES TAKEN OR PLANNED WITHIN THE FRAMEWORK OF THE NAP, INCLUDING MEASURES TO IMPROVE THE ECONOMIC ENVIRONMENT, TO CONSERVE NATURAL RESOURCES, TO IMPROVE INSTITUTIONAL ORGANIZATION, TO IMPROVE KNOWLEDGE OF DESERTIFICATION AND TO MONITOR AND ASSESS THE EFFECTS OF DROUGHT.**

Such measures have yet to be undertaken, and await development of the NAP. Palau is fully aware of the need to include all the above measures, and they will be fully taken into account by the NCB when it develops the NAP.

- **FINANCIAL ALLOCATIONS FROM NATIONAL BUDGETS IN SUPPORT OF IMPLEMENTATION AS WELL AS FINANCIAL ASSISTANCE AND TECHNICAL COOPERATION RECEIVED AND NEEDED, IDENTIFYING AND PRIORITIZING REQUIREMENTS**

Developing an adequate response to the problems created by global climate change will take resources, which the Republic of Palau does not have. Without doubt, financial support will be needed. A budget has yet to be developed, however.

- **A REVIEW OF THE BENCHMARKS AND INDICATORS UTILIZED TO MEASURE PROGRESS AND AN ASSESSMENT THEREOF**

These have not yet been developed.

PHILIPPINES

Introduction

The Philippines ratified the United Nations Convention to Combat Desertification on 10 February 2000, with final accession to the Convention coming into full force in May 2000. As an initial effort, this report provides an insight into the country's increasing vulnerability to drought and land degradation on account of poor watershed and land management, increasing population, and the increasing recurrence of extended dry spells, and the alternating incidences of El Niño and La Niña. These conditions resulted in continuing loss in soil productivity, decline in water availability, and the creation of serious stress on marginal lands that have become the primary source of subsistence for marginally poor farmers.

Drought Vulnerable Areas

While the Philippines is not within the geographic limits and does not have the conditions defined for the Convention on Desertification and Desertified Areas, there are specific areas in the northern tip of Luzon and the southern tip of Mindanao that are within dry sub-humid agricultural areas and are suffering from seasonal aridity and have clear conditions similar to desertification caused by recurrent drought.

These vulnerable areas with seasonal aridity are the major areas of food security in the Philippines. These areas are the major corn and feed grain-producing areas located within the moisture-deficit, rain shadow areas of Region 11 (General Santos City, South Cotabato, Sarangani, and portions of Davao del Sur in the southern tip of Mindanao Island) and of Region 2 in the northern tip of Luzon (Sand dunes of Ilocos Sur, significant portions of Tuguegaro in the Cagayan Valley).

The areas with seasonal aridity and within the dry sub-humid areas are specific portions of the country with dominantly sandy soils that are vulnerable to drought and have land degradation that simulates desertification processes. The seasonal aridity is accentuated by the increasing incidence of El Niño, which now follows a two- to three-year cycle from a five-year interval. The mean daily temperature varies from 30 to 35 degrees C and the relative humidity ranges from 70 to 80 per cent, which is much lower than in most parts of the country. Under these conditions, the soil organic matter is almost depleted

(1 per cent or less) and is characterized by receding groundwater and drying rivers, particularly when extended dry spells and El Niño occurs.

The range of the annual growing period, based from historical analysis of rainfall and evapo-transpiration analysis, indicates that under normal conditions, is limited to four months, with the remaining months suffering from severe moisture stress, and is highly variable and unpredictable. During El Niño periods these areas will suffer most since dry spells would extend up to 10 months, preventing small and marginal farmers to plant their corn crops. During this extended dry spell, the soils of areas, which are generally sandy, and soil moisture is unable to support normal crop growth without supplemental irrigation; the degradation of organic matter is accelerated and wind erosion predominates during the height of the dry season.

Major Events Enhancing Vulnerability to Drought and Desertification

The seasonally arid and dry sub-humid areas are characterized by naturally recurring events and conditions that favour the initiation of drought and desertification. These events are:

1. Increasing Incidence of Drought: El Niño and La Niña Phenomenon

Major drought events in the Philippines have been related to the various El Niño events. Historical records indicated that there are 13 serious El Niño events that happen within the past four decades (1950-1999). The last quarter of 1982 represents the start of the most severe El Niño-related drought in the country. The most recent El Niño, in 1997-1998, was the most extensive in terms of coverage and has seriously affected agricultural lands and crop production and has caused widespread forest fires in the country's already derelict watershed and grassland areas. Areas planted for rice decreased from 3,842,000 hectares to 3,170,000 hectares, resulting in the contraction of palay output by 24.1 per cent and yield per hectare by 7.9 per cent. In the same manner, the areas planted for corn decreased by 14.3 per cent, resulting in the contraction of corn output by 11.7 per cent, although the yield per hectare improved slightly from 1.59 tons in 1997 per hectare to 1.62 tons per hectare during the El Niño year, 1998.

The 1997-1998 El Niño caused many rivers to dry up and induced extensive destruction of watershed areas through forest fires. This event likewise resulted in the drying up of many dams, notably the Angat dam which is the source of irrigation and domestic water supply for Metro-Manila. During the height of the drought, the Government decided to cut-off irrigation water for about 25,000 hectares located in two provinces in order to ensure the water supply of Metro-Manila.

The incidence of long dry spells has affected some 10 per cent or 1.05 million hectares of the country's agricultural lands. This resulted in the loss of 2.5 million mt of agricultural products. Water levels in different hydroelectric dams were observed to have gone down from October 1991 to March 1992, significantly affecting their power generation capacity. The eight-month drought in Mindanao also caused health and sanitation problems due to the drying up of rivers and wells. These forced tribal communities to drink unsafe water resulting in the widespread outbreak of gastro-intestinal diseases. Forest fires induced by long dry months were also severe. For instance, the

1992 drought caused the burning down of a total area of 43,789 hectares of watershed areas.

2. Active Land Degradation

Soil erosion is the most dominant and most dynamic and active force of land degradation in the Philippines. The general extent of land damage caused by soil erosion in the three major islands in the country shows an average of 45.6 per cent of total lands are suffering from moderate (28.3 per cent) and severe (17.3 per cent) erosion.

Other forms of land degradation are loss of soil nutrients, river erosion, water logging, urbanization and other forms of land degradation.

3. Volcanic Eruptions

The Philippines has more than 200 active volcanoes, 21 of which are considered as active. There are four volcanic belts, namely the Westerly Convex Volcanic Belt in Northern Luzon, the Easterly Convex Volcanic Belt from Southern Luzon, the Westerly Volcanic Belt in Negros and Panay Islands, the Southeasterly Volcanic Belt in the Sulu archipelago and Zamboanga Peninsula in Mindanao.

The major volcanic eruption was that of Mt. Pinatubo on 12 June 1991. This eruption resulted in the widespread coverage of volcanic ash and lahar (about 80,000 hectares of agricultural and urbanized areas) and have created a desertified, drought prone condition.

4. Declining Arable Land and Increasing Use of Marginal Degraded Lands due to Land Conversion

The Philippines is suffering from losses in prime agricultural lands from urbanization, construction of golf courses, housing projects, and other socio-economic development infrastructures. The net impact of these losses of prime lands is the movement of deprived, marginalized farmers into the uplands which have marginal productive potential and are seriously lacking in development facilities. Records indicated that these lands are actively being degraded and can not provide even the subsistence needs of farm families.

5. Low Investment in Irrigation Development and Inefficient Water Technologies

The last major irrigation system development was completed in 1980 and after that period no major investment for new irrigation systems were provided. The current efforts are dedicated to the rehabilitation of existing systems and the creation of more investments in small irrigation systems.

Establishment of a National Conservation Body

The prescribed National Conservation Body is not established. However, there are existing organizations, both in private and government sectors, that have concerns with land degradation and drought. There are a considerable number of agencies and private organizations directly and indirectly concerned with drought and land degradation. These bodies shall be tapped to become party to the National Conservation Body.

Institutional and Policy Framework

The Philippine Government has espoused the framework of Philippine Agenda 21, which subscribed to the full achievement of sustainable development. The Philippine Agenda for Sustainable Development is a multi-sectoral organization that integrates people with development and environmental protection. The participatory approach is well emphasized to ensure that all stakeholders of development and environmental management have high awareness of the plans and programmes of the Government.

In responding to the fundamental laws contained in the Constitution, the Government promulgated supportive legislation. Such legislation describes and prescribes the specific uses for land and water resources. Some of the selected Republic Acts and Presidential Decrees currently enforced by the respective sectors relative to land and water utilization and management:

1. R.A. No. 6657: comprehensive Agrarian Reform Law provides that after the lapse of five years from its award, when the land ceases to be economically feasible and sound for agricultural purposes, or the locality has become urbanized and the land will have a greater economic value for residential, commercial or industrial purposes, the Department of Agrarian Reform may authorize the reclassification or conversion and deposition of the land.

2. R.A. No. 7160: Local Government Code of 1991 states that a city or municipality may classify agricultural lands provided that there exists an approved zoning ordinance implementing its comprehensive land-use plan and provided that it is within the limits prescribed thereof. It is further stated that agricultural lands may be classified if they cease to be economically feasible and sound agricultural purposes or when the land shall have substantially greater economic values for residential, commercial and industrial purposes. Agricultural lands may be reclassified in excess of the limits for food production, human settlements, ecological considerations, and other relevant factors in the city or municipality. Cities and municipalities are also mandated to prepare and update their respective comprehensive land-use plans enacted through zoning ordinances that shall be the basis for use of their resources and reclassification of agricultural lands.

3. R.A. 8435: Agricultural Fisheries and Modernization Act of 1997 provides the delineation of Strategic Agriculture and Fisheries Development Zones (SAFDZ) within the Network of Protected Areas for Agriculture and Agro-industrial Development (NPAAAD) to ensure that lands are efficiently and sustainably utilized for food and non-food production and agro-industrialization.

4. R.A No. 8550: The Philippine Fishery Code of 1998 provides for the achievement of food security as the overriding consideration in the utilization, management, development, conservation and protection of fishery resources and ensures the rational and sustainable management and conservation of the fishery and aquatic resources in Philippine waters including the Exclusive Economic Zone (EEZ) and in adjacent high waters.

5. R.A. No. 7586: National Integrated Protected Areas System Act of 1992 recognizes the critical importance of protecting and maintaining the natural biological and physical diversities of the environment, notably in areas with biologically unique features to sustain human life and development, as well as

plant and animal life. In this regard, the State adopts the policy to establish a comprehensive system of integrated protected areas within the classification of national parks as provided for by the Constitution for the purpose of securing perpetual existence of all native plants and animals for the present and future generations.

6. P.D. 705: Revised Forestry Code of the Philippines provides that the multiple uses of forest lands shall be oriented to the development and progress requirements of the country, the advancement of science and technology and public welfare. The protection, development and rehabilitation of forest lands shall be emphasized so as to ensure their continuity in productive condition.

7. P.D. 1067: 1976 Water Codes of the Philippines adopts a basic law governing the ownership, appropriation, utilization, exploitation, development, conservation and protection of water resources and rights to land thereto. It provides that any watershed or any area of land adjacent to any surface water or overlaying any ground water may be declared as protected area. Rules and regulations may be promulgated to prohibit or control such activities by the owners or occupants thereof within the protected area which may damage or cause the deterioration of the surface water or groundwater or interfere with the investigation, use, control, protection, management or administration of such waters.

8. P.D. 1586: Environmental Impact Statements provides for the establishment and institutionalization of a system whereby the exigencies of socio-economic undertakings can be reconciled with the requirements of environmental quality. It is also caused for the declaration of certain projects, undertakings or areas in the country as environmentally critical. For this purpose, the proper land and water use pattern for the areas of said critical projects shall be prepared.

Strategies and Priorities

The first major effort to create appropriate strategies for the Philippines is to undertake the Mindanao Workshop on Drought Mitigation and Land Degradation Control in the last quarter of 2000. The UNCCD, UNDP and the National Government of the Philippines will support the proposed workshop in Mindanao.

The strategies adopted by the Government cover wide but inter-related actions on soil and water conservation and management. They include:

1. More focused attention on small-scale irrigation systems and major investment in rehabilitating existing national irrigation systems to improve their irrigation efficiency.

2. Shallow Tube Well Development. Individual shallow wells were installed in individual farmers' fields as a way to augment irrigation in lowland areas not covered by the national and communal irrigation system. The total number of shallow tube wells established is 23,240, serving at least 69,720 hectares.

3. Intensive campaign for rainwater harvesting and management. The country has about 369 rainwater retention structures (small water impounding projects), which now provides water for irrigation of about 21,180 hectares of rice and other upland crops. Freshwater fish and watershed development are important outputs of the establishment of small water impounding projects. There are some 20,009 small farm reservoirs (serving 20,009 hectares) established and completed to serve individual farmers.

4. Switch to organic-based farming, using the Balanced Fertilization Strategy, which provide optimum mix of organic and inorganic fertilizers. The fertilization strategy resulted in a sustained yield increase from 2.5 tons per hectare to 6-7 tons per hectare and improvement in soil fertility properties.

5. Watershed Protection and Resource Management. There is now a "no-logging" policy, especially in critical watershed areas.

6. Recognition of the Watershed Domain of the Indigenous Communities.

7. Encourage wider and closer participation of NGO, PO, and other private sector groups in land-use and management planning.

8. Legally defining the locations and distribution of prime agricultural lands or the Strategic Agriculture and Fishery Development Zones with the ultimate aim of protecting prime lands from irrational conversion and ensuring that the best lands of agriculture are identified and set aside for the country's agriculture modernization programme.

National Action Programmes

The National Action Programmes of the Philippines has not been formulated to date. However, the Action Programme will subscribe to the inclusion of various programmes that will be addressed to mitigating drought and land degradation and ensuring that the desertification process is not allowed to occur in any parts of the country. The National Action Programme will include the following concerns:

- Improvement of Economic Environment
- Conservation of Natural Resources
- Improvement of Institutional Organization
- Information Campaign on character and impacts of Desertification, Drought and Land Degradation
- Monitoring and Evaluation on the Effects of Drought and land degradation

QATAR

The State of Qatar has shown an early interest and serious concern in the effects of desertification and has consciously observed and/or attended to different efforts by the International community (countries and organizations) towards the development of UNCCD and its subsequent activities and very positive progresses. Joint action is indeed felt by the policy and decision makers in the State of Qatar as highly needed in order to combat desertification and/or mitigate the effects of drought.

The country has experienced a fast and a vast socio-economical development

in the last few decades as a result of its high oil revenues. This was early also accompanied by anxious and great interest in exploring, supporting and investing other natural resources. Land and water resources are no exception. Although agricultural production output is very low (only 1.1 per cent of the total GDP), significant increases in aspects like cultivated area of several groups of crops, number of farms, productivity indexes, livestock numbers and in areas irrigated were achieved.

As a consequence to both the said socio-economic changes and the imbalances of accompanying intensive and extensive management activities in the field of natural resources, desertification has manifested itself in several aspects. Declining quantity and quality of water and land resources and vegetative cover are now very well realized and established.

The efforts of the previous joint projects with United Nations organizations and national governmental bodies presently existing such as: (a) Department of Agricultural and Water Research; (b) Department of Agricultural Development; (c) Department of Environment - all under the umbrella of the Ministry of Municipal Affairs and Agriculture, are notable.

They brought-in awareness, facilitated many relevant strategies, policy activities and achievements which directly or indirectly stream-in the local combating of desertification efforts taken and/or to be taken at national level. Some levels of participatory and consultative actions are ongoing, but they wait for more support and strengthening.

This report may be considered, among other resources, as baseline information that will assist measuring changes that might take place in the future. Changes are expected due to the implementation of future plans relating to combating desertification in the State of Qatar. Such future plans are expected to be drawn up within the broad guidelines of the NAP outlined in the national report.

REPUBLIC OF KOREA

Through the long history of Korea, wise management of forests and water flows has been the most important among various priorities of dynasties and governments. But during the first half of the 20th century, including the Korean War, severe deforestation had occurred across the Korean Peninsula due to widespread illegal cuttings and overcutting practices. Since the early 1960s, in parallel with the Economic Development Plans, rehabilitation activities of forest lands have been strongly propelled in order to green the country again. In 1973 the first 10-year National Forest Plan was devised to complete the rehabilitation of denuded forest lands and to enhance the protection of the existent forests. The subsequent National Forest Plans have been implemented for improving forest resources and consequently providing augmented economic and environmental benefits to the society.

Through the long-term Forest Plans, Korea has been successful in greening the country again. In recent years, sustainable development has been the primary theme in managing the natural resources to achieve and maintain the balance and harmony between development and conservation, as emphasized at UNCED and other various international meetings. The implementation of forest conservation, therefore, has been embodied in the Fourth Forest Plan, which has been launched in 1998.

SAUDI ARABIA

Introduction

The Kingdom of Saudi Arabia (KSA) comprises an area of about 2.25 million km^2 located in the Western continental desert belt characterized by its hot and dry climate through the year (particularly in the summer season). As a result, KSA is frequently exposed to drought periods and desertification hazards that result in the degradation of its natural renewable resources.

After the unification of the Kingdom, the Government started early (since the 1960s) to mitigate effects of drought and to combat desertification through conservation and development of its renewable natural resources.

During the period (1960-1990) advanced priority was given to maintenance and development of water resources, soil, forests and rangelands through surveying, evaluation, controlling utilization, implementation of some developmental programmes and application of suitable management approaches. Special attention was given to development and improvement of infrastructures, the education and health situation, institutional framework and capacity-building to support development and conservation of resources.

Strategies adopted to implement Agenda 21 and international conventions

Since UNCED and the outcome of Agenda 21 and other international treaties, KSA started to formulate its strategies and National Action Plans needed to conserve and develop its national environment and to support international efforts to conserve the global environment through the creation and development of the following:

1. The National Strategy for Health and Environment;

2. The Strategy and National Action Programmes to combat desertification on the basis of the 12th section of Agenda 21;

3. The Strategy and the National Action Programmes for the conservation of biodiversity;

4. The National Plan for the management of the coastal habitats;

5. The National Plan for protecting the environment.

For supporting KSA policy to conserve natural renewable resources and the environment, the Royal Decree No.A/90 published in 1992 entrusted KSA Government to protect and restore the environment, as well as to minimize pollution sources. Furthermore, the objectives and the 12 strategic base of KSA seventh five-year plan (2000-2005) stressed the importance of continuing efforts of conservation and development of environment, its ecosystems, natural renewable resources and wildlife through the adoption of the following policies:

1. Development of environment protection systems, restoring its natural habitats and combating desertification;

2. Conservation and development of different types of wildlife in KSA;

3. Achieving the balance between population distribution and environment carrying capacity.

In 1995 the Council of Ministers of KSA approved the report related to the implementation of Agenda 21 which had been prepared by a special national committee. The report included a recommendation to develop integrated national plans for combating desertification and mitigation of drought effects through the following:

1. Supporting data basis and development of information systems concerned to desertification and drought;

2. Control land degradation through conservation of soil and rangelands as well as through rehabilitation of depleted areas;

3. Preparing National Action Programmes for combating desertification to be included in the National Development Plans of KSA;

4. Preparing emergency integrated plans to address effects of drought and other natural disasters.

Implementation of the UNCCD

Saudi Arabia ratified the Convention on 3/7/1997 and acceded 4/7/1997. It is fully committed to implement the provisions of the UNCCD. The Ministry of Agriculture and Water was officially nominated to be the coordinating body at the National and International levels. A National Committee was formed headed by the Ministry of Agriculture and Water including all the relevant government bodies as members for formulating the strategies and the National Action Programmes. The Committee has already formulated the National Strategy for combating desertification and currently started to formulate the present status of desertification and the National Action Programmes.

National Action Programmes:

It has been agreed that the programmes for combating desertification should be integrated with the overall social and economic developmental programmes of the Kingdom, as well as to be in harmony with its general strategic framework of combating desertification, linked and complementing the concerned Regional and Subregional programmes. On the other side all necessary measures were taken to ensure the participation of all government ministries and institutions as well as local communities represented at all levels in formulating and implementing the national action programmes, as well as in proposing priorities through seminars, conferences, workshops, popular and specific meetings and intensive extension programmes.

At the regional and subregional level, there is full coordination with representatives of countries and regional, subregional and international organizations.

Concerning the legal and organizational framework for implementing the UNCCD, all ordinances and regulations concerning the environment at the local level were studied, analysed and utilized in issuing new rules and ordinances or updating previous ones. The most important being the following:

1. The Forests and Range Ordinance;

2. The land distribution and utilization ordinance and regulations;

3. The Ordinance of the conservation and utilization of the live aquatic resources in the National Waters of the Kingdom;

4. The ordinance of water resources conservation;

   (a) The ordinance of the reserved areas. Draft of the proposed ordinance of the National Parks;

   (b) Draft of the proposed ordinance for the environment.

Preparation and Implementation of the National Action Programme (NAP)

Some measures were taken through the framework of the preparation and implementation of the NAP to ensure the effectiveness of the programmes concerning combating desertification and mitigation of the effects of drought and to achieve the objective of improving the economic environment, conservation of natural resources, development and improvement of institutions, providing information concerning desertification, monitoring and evaluation of its effects.

Previous experience gained in the field of development and environmental protection were evaluated and used to avoid weaknesses and the establishment of an information base solely for desertification at the regional and a national levels.

In the former decades a number of activities were undertaken in the field of combating desertification, conservation and development of the renewable natural resources and the mitigation of the effects of drought. The most important activities are the following:

- Protection of 75 sites in the kingdom for the conservation of forests, ranges and wildlife;

- Reforestation of 53 sites;

- Establishment of more than 600 earth dikes for spreading water on rangelands to develop the vegetation cover;

- Sand dune fixation in an area of 4500 ha in the eastern region of the Kingdom;

- Reclamation of extensive agricultural land affected by salinity and water logging;

- Establishment of a number of National Parks which led to the improvement of a number of locations as well as the conservation of the natural habitats and biodiversity;

- Establishment of an information networks for monitoring of climate and resources;

- Execution of some projects for the treatment of sewage water in many towns and used in afforestation;

- Establishment of various research institutions for research in the field of desertification, environment and resource conservation.

In addition to the above, certain measures were taken to build the National capacities and to make use of the recent technologies to combat desertification.

KSA government provides financial allocations in the budget required for implementing the items of the Convention to Combat Desertification. The Kingdom does not receive any financial or technical assistance for implementing the National programmes from anywhere. The Kingdom hopes to receive some technical assistance in some fields after the formulation of the NAP.

The UNCCD profile system for KSA National report has been mentioned under item 10 in The Arabic version.

SINGAPORE

Global warming and climate change, ozone layer depletion, management of hazardous wastes, deforestation and desertification are some major environmental challenges confronting the world today. Recognising that cooperation is needed to address these global challenges, many nations have come together to discuss and explore ways of preserving and protecting the Earth. Numerous international environmental agreements have been made. As a member of the global community, Singapore participates in many of these agreements. We ratified the United Nations Convention to Combat Desertification in December 1998.

Singapore subscribes to the principles of sustainable development. To assist fellow developing countries, our Prime Minister launched the US$3 million STAPSD or "Singapore Technical Assistance Programme for Sustainable Development" for developing countries as Singapore's contribution to the Global Initiative on Sustainable Development at the 19th UNGASS (19th Special Session of the United Nations General Assembly) in June 1997.

Singapore is appreciative of the active involvement of the United Nations in global environmental concerns. The interest and involvement of the United Nations in regional environmental issues is equally important. UNEP's lead role in mobilizing international assistance to Indonesia was instrumental in helping the region deal with the forest fires and smoke haze. Singapore looks forward to the continued support of the United Nations, in particular UNEP, in this area.

While Singapore believes that international cooperation is crucial to achieve a more sustainable future for the world community, we also recognize that every country has to be responsible for the preservation of its own environment. Desertification is not a problem that directly affects Singapore. However, rapid urbanization has subjected our fragile natural ecosystems to severe stress. As our population increases, the pressure for more land accelerates alongside with the increased demand for an attractive and comfortable living environment.

As a small city-state faced with several constraints on our land use, the challenge for Singapore is to create a living and working environment with world class technology and facilities that allow the space for privacy and maintains contact with nature.

MAINTAINING SINGAPORE'S BIODIVERSITY

1. Rapid urbanisation across the globe, particularly in the last 50 years, has had a profound impact on the natural environment, shrinking it at a worrisome rate. Natural ecosystems, which have taken millions of years to evolve, are fragile and their existence are increasingly under threat due to habitat destruction, alteration and the invasion of exotic species. Biological diversity is being lost at a rapidly increasing rate. Indeed, some scientists estimate that human activities cause the extinction of 50 to 100 species of animals and plants a day, compared to a natural extinction rate of 10 species per century.

Singapore's Experience and Challenges

2. Much of Singapore's pristine natural areas disappeared in the early part of this century. Fortunately, however, Singapore still has a rich biodiversity of plants and animals, with species numbers exceeding that of the United Kingdom or Canada. Still, more than 10 per cent of our mammal and bird species have been lost in the last 150 years. Many of our plant species are thankfully not in a state of rapid decline, according to our National Institute of Education scientists who conducted a limited study of the Bukit Timah Nature Reserve.

3. For the proper management of our natural areas, including the native plants and animals they harbour, well-planned scientific studies must be carried out. Singapore's National Parks Board, for instance, coordinated a Nature Reserves Survey to document Singapore's indigenous biodiversity. More of such surveys would have to be done in the future to help take stock of our natural heritage with a view to protecting it.

4. In the face of Singapore's rapid urbanization, special effort is made to preserve and indeed enhance our garden environment - both in respect of our nature areas and also our man-made parks and green spaces. Only then can we truly achieve our goal of making Singapore a most liveable and attractive city. Singapore's "greening" programme started way back in the 1960s and has picked up momentum over the years. The National Parks Board aims to create a pervasive garden environment over the whole island, making Singapore our city within a garden.

5. To overcome the constraints of land scarcity in Singapore, conjuring innovative ways of maximizing land use becomes a constant challenge. One important strategy we have adopted is to incorporate as many compatible uses in our green spaces. Parks, for instance, are increasingly being opened up for other compatible uses, from horticultural planting to venues for staging outdoor concerts. They serve as landscaped areas where Singaporeans can play, relax, learn or simply enjoy being close to nature. Roadside trees are another important component of our greening programme. These ubiquitous roadside trees do a lot more that offer shade and soften the built environment; they also serve as habitats and food for birds, lizards and insects, and reduce air and noise pollution.

6. Singapore's nature areas are especially important, as has been acknowledged in the Singapore Green Plan. These nature areas range from the primary rain forests in our nature reserves to the secondary forests and mangroves in places such as Sungei Buloh Nature Park, a thriving bird sanctuary. These nature areas serve as the protective refuge for our native plants and animals.

7. They are also essential for the crucial ecological life processes that go on even in urbanized settlements, such as the carbon cycle, the nitrogen cycle, the water cycle. These days, they are also being used as "nature labs" to enrich the minds of our younger generation.

8. Small countries like Singapore, however, are inevitably confronted by the dilemma between releasing more land for development or conserving nature areas. Indeed, our experience in recent times has shown that even the provision of basic amenities to make some of these nature sites more accessible to the general public could draw loud protests from some nature-lovers. The Government takes the view that neither development nor conservation is mutually exclusive - it is not a case of having one or the other, period. Rather, it is a case of striking an optimal balance so as to accommodate both these important needs.

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